

We claim:

1. A hydrogenation catalyst of the general formula $AB(y)C(z)$ wherein A is a support comprising of a salt of a Group II A metal or zeolite, B is a noble metal selected from Pt or Pd, $y = 0.2$ to 10% , C is nickel and $z = 0$ to 15.0% , with the proviso that when B is Pt, $z = 0$.
2. A process for the preparation of a hydrogenation catalyst of the general formula $AB(y)C(z)$ wherein A is a support comprising of a salt of a Group II A metal or zeolite, B is a noble metal selected from Pd or Pt, $y = 0.2$ to 10% , C is nickel and $z = 0$ to 15.0% , with the proviso that when B is Pt, $z = 0$, said process comprising:
 - i. dissolving a noble metal precursor in a mineral acid by stirring at a temperature in the range between 60°C to 120°C ;
 - ii. diluting the above solution by adding water;
 - iii. adjusting the pH of the solution to the range of $8 - 12$ by adding a base;
 - iv. adding a support to the above solution;
 - v. heating the mixture to a temperature in the range of 60°C to 120°C ;
 - vi. reducing the above mixture using a conventional reducing agent;
 - vii. separating the catalyst formed by any conventional method;
 - viii. washing and drying the product to obtain the catalyst.
3. A process as claimed in claim 2 wherein the catalyst obtained at the end of step viii is mixed with a solution of nickel in a basic medium having a pH in the range of $8 - 12$; stirred for about 1 hour; the catalyst formed is separated by any conventional method; dried at about 150°C up to 10 hours in static air; reduced at a temperature in the range of between $390 - 420^{\circ}\text{C}$ for a time period in the range of between $5 - 12$ hours in a flow of hydrogen; the product being separated, washed and dried to obtain the catalyst.
4. A process as claimed in claim 2 wherein the noble metal source is a salt of a noble metal selected from the group consisting of acetate, bromide, and chloride of and the source of nickel is a salt of nickel selected from the group consisting of acetate, carbonate, chloride and nitrate.
5. A process as claimed in claim 2 wherein the support is a salt of a Group II A metal selected from the group consisting of acetates, nitrates, chlorides and

carbonates of magnesium, calcium and barium and the source of zeolite is $\text{NH}_4\text{-ZSM5}$.

6. A process as claimed in claim 2 wherein the base used is selected from the group consisting of sodium carbonate, potassium carbonate, potassium hydroxide, and sodium hydroxide.
7. A process as claimed in claim 2 wherein the reducing agent used is selected from the group consisting of hydrazine hydrate, hydrogen containing gas, and formaldehyde.
8. A process as claimed in claim 2 wherein A is a support comprising of a salt of a Group II A metal, B is platinum and $y = 0.2$ to 10% , said process comprising:
 - i. dissolving a platinum precursor in a mineral acid by stirring at a temperature in the range between 60°C to 120°C ;
 - ii. diluting the above solution by adding water;
 - iii. adjusting the pH of the solution to the range of $8 - 12$ by adding a base;
 - iv. adding a support to the above solution;
 - v. heating the mixture to a temperature in the range of 60°C to 120°C ;
 - vi. reducing the above mixture using a conventional reducing agent;
 - vii. separating the catalyst formed by any conventional method;
 - viii. washing and drying the product to obtain the desired catalyst.
9. A process for the preparation of 1, 4 butenediol from 1, 4 butynediol said process comprising subjecting the 1,4 butynediol to hydrogenation by any conventional method characterised in that the catalyst used for the hydrogenation is of the general formula $\text{AB}(y)\text{C}(z)$ wherein A is a support comprising of a salt of a Group II A metal, B is a noble metal selected from Pd and Pt, $y = 0.2$ to 10% , C is nickel and $z = 0$ to 15.0% with the proviso that when B is Pt, $z = 0$.
10. A process as claimed in claim 8 wherein the selectivity of the process at milder process conditions is 100% .
11. Use of a novel hydrogenation catalyst of the general formula $\text{AB}(y)\text{C}(z)$ wherein A is a support comprising of a salt of a Group II A metal or zeolite, B is a noble metal selected from Pd and Pt, $y = 0.2$ to 10% , C is nickel and $z = 0$ to 15.0% with the proviso that when B is Pt, $z = 0$, for the preparation of 1,4 butenediol from 1, 4 butynediol.